

# Interagency Workshop on the Environmental Implications of Nanotechnology

**Hotel Monaco  
700 F Street, NW  
Washington, DC**

**September 5-7, 2007**

## **DRAFT AGENDA**

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### ***DAY 1, Wednesday, September 5, 2007***

- 8:00 – 8:30 a.m.**            **Registration**
- 8:30 – 8:50 a.m.**            **Welcome**  
*Marcus Peacock (tentative), Deputy Administrator, U.S. Environmental Protection Agency (EPA)*
- 8:50 – 9:10 a.m.**            **Nanotechnology Environmental and Health Implications (NEHI), National Nanotechnology Initiative (NNI) Research Needs**  
*Clayton Teague (tentative), Director, National Nanotechnology Coordination Office, Nanoscale Science, Engineering, and Technology Subcommittee, NEHI, NNI*
- 9:10 – 9:30 a.m.**            **Department of Energy (DOE) Research User Facilities**  
*Ataf Carim, DOE*
- 9:30 – 9:50 a.m.**            **National Science Foundation (NSF)**  
*Cynthia J. Ekstein (tentative), Bioengineering and Environmental Systems Division, NSF*
- 9:50 – 10:05 a.m.**        **National Institute for Occupational Safety and Health (NIOSH)**  
*W. Allen Robison, Office of Extramural Programs, NIOSH*
- 10:05 – 10:20 a.m.**        **National Institute of Environmental Health Sciences (NIEHS)**  
*Nigel Walker, National Toxicology Program (NTP), NIEHS*
- 10:20 – 10:40 a.m.**        ***BREAK***
- 10:40 – 11:10 a.m.**        **Office of Research and Development (ORD) Introduction**  
*George M. Gray, Assistant Administrator, ORD, EPA*
- 11:10 – 11:30 a.m.**        **ORD Research Strategy**  
*Nora Savage, ORD, EPA*

*DAY 1, Wednesday, September 5, 2007 (continued)*

**11:30 – 1:00 p.m.**      *LUNCH*

*Metals, Metal Oxides*

**1:00 – 1:20 p.m.**      **The Fate, Transport, Transformation, and Toxicity of  
Manufactured Nanomaterials in Drinking Water**  
*Paul Westerhoff, Arizona State University*

**1:20 – 1:40 p.m.**      **Pulmonary and Systemic Inhalation Toxicity of Multi-Walled  
Carbon Nanotubes**  
*Jacob McDonald, Lovelace Biomedical and Environmental Research  
Institute*

**1:40 – 2:00 p.m.**      **Biodistribution of Nanomaterials in Skin**  
*Nancy Monteiro-Riviere, North Carolina State University*

**2:00 – 2:20 p.m.**      **Health Effects of Inhaled Nanomaterials**  
*Kent Pinkerton, University of California*

**2:20 – 2:40 p.m.**      *BREAK*

*Metals, Metal Oxides (continued)*

**2:40 – 3:00 p.m.**      **Metal Nanoparticle Tissue Distribution following *In Vivo*  
Exposures**  
*Alison Elder, University of Rochester*

**3:00 – 3:20 p.m.**      **The Bioavailability, Toxicity, and Trophic Transfer of  
Manufactured ZnO Nanoparticles: A View From the Bottom**  
*Jason Unrine, University of Georgia*

**3:20 – 3:40 p.m.**      **Uptake and Toxicity of Metallic Nanoparticles in Freshwater Fish**  
*David Barber, University of Florida*

**3:40 – 4:00 p.m.**      **Acute and Developmental Toxicity of Metal Oxide Nanoparticles  
to Fish and Frogs**  
*George Cobb, Texas Tech University*

**4:00 – 4:20 p.m.**      **Mechanistic Dosimetry Models of Nanomaterial Deposition in the  
Respiratory Tract**  
*Bahman Asgharian, CIIT Centers for Health Research*

*DAY 1, Wednesday, September 5, 2007 (continued)*

**4:20 – 4:40 p.m.**            **Short-Term Chronic Toxicity of Photocatalytic Nanoparticles to Bacteria, Algae, and Zooplankton**  
*C.P. Huang, University of Delaware*

**4:40 p.m.**                    **ADJOURN – DAY 1**

*DAY 2, Thursday, September 6, 2007*

**8:30 – 8:40 a.m.**            **Welcome**

*Metals, Metal Oxides (continued)*

**8:40 – 9:00 a.m.**            **Novel Nanostructured Catalysts for Environmental Remediation of Chlorinated Compounds**  
*Yunfeng Lu/Vijay John, University of California, Los Angeles*

**9:00 – 9:20 a.m.**            **Responses of Lung Cells to Metals in Manufactured Nanoparticles**  
*John Veranth, University of Utah*

**9:20 – 9:40 a.m.**            **A Toxicogenomics Approach for Assessing the Safety of Single-Walled Carbon Nanotubes in Human Skin and Lung Cells**  
*Mary Jane Cunningham, Houston Advanced Research Center*

**9:40 – 10:00 a.m.**         **Microbial Impacts of Engineered Nanoparticles**  
*Delina Lyon, Rice University*

**10:00 – 10:20 a.m.**        **An Integrated Approach Toward Understanding the Inflammatory Response of Mice to Commercially Manufactured CuO/Cu, Fe<sub>2</sub>O<sub>3</sub>/Fe and TiO<sub>2</sub> Nanoparticles**  
*Vicki Grassian, University of Iowa*

**10:20 – 10:40 a.m.**        **BREAK**

*Metals, Metal Oxides (continued)*

**10:40 – 11:00 a.m.**        **Hysteretic Accumulation and Release of Nanomaterials in the Vadose Zone**  
*Tohren Kibbey, University of Oklahoma*

*DAY 2, Thursday, September 6, 2007 (continued)*

***Carbon-Based***

- 11:00 – 11:20 a.m.**      **Role of Particle Agglomeration in Nanoparticle Toxicity**  
*Terry Gordon, New York University School of Medicine*
- 11:20 – 11:40 a.m.**      **Chemical and Biological Behavior of Carbon Nanotubes in Estuarine Sedimentary Systems**  
*Lee Ferguson, University of South Carolina*
- 11:40 – 12:00 p.m.**      **Fate and Transformation of C60 Nanoparticles in Water Treatment Processes**  
*Jaehong Kim, Georgia Institute of Technology*
- 12:00 – 1:20 p.m.**      **LUNCH**

***Carbon-Based (continued)***

- 1:20 – 1:40 p.m.**      **Cross-Media Environmental Transport, Transformation, and Fate of Manufactured Carbonaceous Nanomaterials**  
*Peter Vikesland, Virginia Tech*
- 1:40 – 2:00 p.m.**      **Transport and Retention of Nanoscale Fullerene Aggregates in Water-Saturated Soils**  
*Kurt Pennell, Georgia Institute of Technology*
- 2:00 – 2:20 p.m.**      **Repercussion of Carbon-Based Manufactured Nanoparticles on Microbial Processes in Environmental Systems**  
*Ronald Turco, Purdue University*
- 2:20 – 2:50 p.m.**      **BREAK**

***Carbon-Based (continued)***

- 2:50 – 3:10 p.m.**      **Monitoring and Characterizing Airborne Carbon Nanotube Particles**  
*Judy Xiong, New York University School of Medicine*
- 3:10 – 3:30 p.m.**      **Physical and Chemical Determinants of Carbon Nanotube Toxicity**  
*Robert Hurt, Brown University*

*DAY 2, Thursday, September 6, 2007 (continued)*

*Carbon-Based (continued)*

- 3:30 – 3:50 p.m.**      **Assessment of the Environmental Impacts of Nanotechnology on Organisms and Ecosystems**  
*Dmitry Kopelevich, University of Florida*
- 3:50 – 4:10 p.m.**      **Structure-Function Relationships in Engineered Nanomaterial Toxicity**  
*Vicki Colvin, Rice University*
- 4:10 – 4:30 p.m.**      **Interactions of Pure and Hybrid Polymer Nanofibers With Cells**  
*Perena Gouma, State University of New York*

*Other Nanomaterials*

- 4:30 – 4:50 p.m.**      **Cellular Uptake and Toxicity of Dendritic Nanomaterials: An Integrated Physicochemical and Toxicogenomics Study**  
*Mamadou Diallo, California Institute of Technology*
- 4:50 p.m.**                *ADJOURN – DAY 2*

*DAY 3, Friday, September 7, 2007*

- 8:30 – 8:40 a.m.**      **Welcome**

*Other Nanomaterials (continued)*

- 8:40 – 9:00 a.m.**      **Assessment Methods for Nanoparticles in the Workplace**  
*Patrick O'Shaughnessy, University of Iowa*
- 9:00 – 9:20 a.m.**      **Development of Nanosensors for the Detection of Paralytic Shellfish Toxins (PSTs)**  
*Robert Gawley, University of Arkansas*
- 9:20 – 9:40 a.m.**      **Transformations of Biologically Conjugated CdSe Quantum Dots Released Into Water and Biofilms**  
*Patricia Holden, University of California, Santa Barbara*

***DAY 3, Friday, September 7, 2007(continued)***

***Other Nanomaterials (continued)***

- 9:40 – 10:00 a.m.**      **Nanotechnology: A Novel Approach to Prevent Biocide Leaching**  
*Patricia Heiden, Michigan Technological University*
- 10:00 – 10:20 a.m.**      **Evaluating the Impacts of Nanomanufacturing via  
Thermodynamic and Life Cycle Analysis**  
*Bhavik Bakshi, The Ohio State University*
- 10:20 – 10:40 a.m.**      **TBD**
- 10:40 a.m.**                ***MEETING ADJOURNMENT***